

1. (Amended) A system for coupling a base station transmitter and a base station receiver to an antenna for a commercial mobile radio service (CMRS) system, comprising:

an antenna for radiating transmit signals to and receiving receive signals from mobile radio stations of a CMRS system;

a plurality of receive branch networks, coupled to the antenna via a receive path and to the base receiver, each operative to select a frequency range of the receive signals for reception by the base station receiver and to pass the receive signals for processing by the remaining receive branch networks located in a downstream portion of the receive path;

a plurality of transmit branch networks, coupled to the antenna via a transmit path and to the base transmitter, each operative to select a frequency portion of the transmit signals transmitted by the base transmitter for forwarding to the antenna and to accept all transmit signals forwarded by the remaining transmit branch networks in a downstream portion of the transmit path for forwarding to the antenna;

a bandpass filter, coupled between the antenna and the receive path, for passing receive signals within a predetermined frequency range from the antenna circulator to the receive path while preventing the passage of transmit signals from the circulator to the receiver path; and

an isolator, coupled between the antenna and the transmit path, for passing transmit signals to the antenna circulator from the transmit path while preventing the passage of receive signals from the antenna to the transmit path.

12. (Amended) A method for coupling a base station transmitter and a base station receiver to an antenna for a commercial mobile radio service (CMRS) system, the antenna

coupled to a receive path comprising receive branch networks for processing receive signals and to a transmit path comprising transmit branch networks for processing transmit signals, comprising the steps:

at each of the receive branch networks, selecting a frequency range of receive signals for reception by one of the base station receivers and passing the receive signals to the receive

branch networks located in a downstream portion of the receive path for processing by the remaining base station receivers;

at each of the transmit branch networks, selecting a frequency portion of transmit signals transmitted by one of the base transmitters for forwarding to the antenna and accepting all transmit signals forwarded by the remaining transmit branch networks located in a downstream portion of the transmit path for forwarding to the antenna;

at the receive path, passing receive signals to the receive path from the antenna while preventing passage of transmit signals to the receive path; and

at the transmit path, passing transmit signals to the antenna from the transmit path while preventing passage of receive signals to the transmit path.

13. (Amended) A system for coupling a base station transmitter and a base station receiver to an antenna for a commercial mobile radio service (CMRS) system, comprising:

an antenna for radiating transmit signals to and receiving receive signals from mobile radio stations of a CMRS system:

a plurality of receive branch networks, coupled to the antenna via a receive path and to the base receiver, each comprising:

a circulator, comprising a first port and a third port coupled to the receive path and a second port, operative to accept receive signals from an upstream portion of the receive path via the first port, to pass the receive signals via the second port to the third port and to the remaining receive branch networks located in the downstream portion of the receive path, and to output the receive signals via the second port, and

a filter, coupled between the second port of the circulator and the base receiver, operative to accept the receive signals from the second port of the circulator and to select a frequency range of the receive signals for processing by the base receiver;

a plurality of transmit branch networks, coupled to the antenna via a transmit path and to the base transmitter, each comprising:

a filter, coupled to the base transmitter, operative to output filtered transmit signals in response to selecting a frequency portion of the transmit signal generated by the base transmitter, and

a circulator, comprising a first port and a third port coupled to the transmit path and a second port coupled to the filter, operative to accept at the second port the filtered transmit signals for forwarding via the third port to an upstream portion of the transmit path and to accept at the first port the transmit signals output by remaining transmit branch networks located in the downstream portion of the transmit path for forwarding via the third port to the upstream portion of the transmit path;

a bandpass filter, coupled between the antenna and the receive path, for passing receive signals within a predetermined frequency range from the antenna circulator to the receive path while preventing the passage of transmit signals from the transmit path; and

a2 an isolator, coupled between the antenna and the transmit path, for passing transmit signals to the antenna circulator from the transmit path while preventing the passage of receive signal from the antenna to the transmit path.

14. (Amended) The system of Claim 13 further comprising an antenna circulator, coupled between the receive and transmit paths and to the antenna, for directing receive signals from the antenna to the receive path and transmit signals from the transmit path to the antenna.

17. (Amended) The system of Claim 13, wherein
the base receiver comprises a plurality of channel receivers, each allocated a unique frequency range and coupled to one of the receive branch networks for processing receive signals within the unique frequency range; and

a3 the base transmitter comprises a plurality of transmitters, each allocated a unique frequency range and couple to one of the transmit branch networks for generating transmit signals within the unique frequency range.

18. (Amended) The system of Claim 13, wherein the number of receive branch networks are equal to the number of transmit branch networks.

a3 19. (Amended) The system of Claim 13, wherein the number of receive branch networks are not equal to the number of transmit branch networks.
